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EXAMINER	
NGUYEN, TOAN D	

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/086,569	DIAZ, RAYMOND	
	Examiner	Art Unit	
	Toan D. Nguyen	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11,13-22,24,26-32,34-37,39-45,47,49-53,55 and 57-59* is/are rejected.

7)☒ Claim(s) *10,12,23,25,33,38,46,48,54 and 56* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/28/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 5-9, 11, 13-16, 18-22, 24, 26-32, 34-37, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Milliron et al. (US 6,208,670) in view of Schumann-Olsen et al. (US 2002/0057652).

For claim 1, Milliron et al. disclose digital carrier system for rural telephone and data applications, comprising:

at least one communication interface (figure 7, reference 60, col. 15 line 47);

a communication interface circuit (figure 7, reference 62, col. 15 line 48) coupled to the at least one communication interface (figure 7, reference 60, col. 15 line 47), wherein the communication interface circuit communicates using a communication protocol (col. 17 lines 45-48) and a hop count (figure 9, col. 19 lines 30-67);

wherein the communication interface circuit (figure 7, reference 62) is adapted to send a discovery query and to receive discovery response messages over the EOC of the at least one communication interface (figure 9, reference state 154, col. 18 lines 43-54); and

wherein the communication interface circuit (figure 7, reference 62) is adapted to compare a hop count from a discovery response message from a second communication

device to a total number of discovery response messages received from the second communication device and any intervening communication devices (figure 9, col. 19 lines 52-54).

However, Milliron et al. do not expressly disclose wherein the communication protocol contains an embedded operation channel (EOC). In an analogous art, Schumann-Olsen et al. disclose wherein the communication protocol contains an embedded operation channel (EOC)(figure 1, reference Maintenance EOC, paragraph [0004]).

One skilled in the art would have recognized the communication protocol contains an embedded operation channel (EOC), and would have applied Schumann-Olsen et al.'s HDSL transmission system in Milliron et al.'s COT 38. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Schumann-Olsen et al.'s managed HDSL repeater in Milliron et al.'s digital carrier system for rural telephone and data applications with the motivation being to provide the HDSL access line (paragraph [0004].

For claim 2, Milliron et al. disclose wherein the communication device is a doubler (figure 5, reference 34, col. 8 lines 42-43).

For claim 3, Milliron et al. disclose wherein the communication device is a terminal communication device (figure 5, reference 33, col. 8 line 42).

For claim 5, Milliron et al. disclose wherein the communication device is adapted to selectively configure the communication interface circuit and the at least one

communication interface in response to the received discovery response messages (figure 7, col. 15 lines 48-52).

For claim 6, Milliron et al. disclose wherein the communication interface circuit is adapted to send the discovery query and to receive discovery response messages over the EOC of a plurality of communication interfaces simultaneously (figure 9, col. 18 lines 25-54).

For claim 7, Milliron et al. disclose wherein the communication interface circuit is adapted to send a discovery query and to receive discovery response messages over the at least one communication interface upon initialization of the communication device (figure 9, col. 18 lines 25-54).

For claim 8, Milliron et al. disclose wherein the communication interface circuit is adapted to send a discovery query and to receive discovery response messages over the at least one communication interface upon having the at least one communication interface coupled to an active communication link (figure 9, col. 18 lines 25-54).

For claim 9, Milliron et al. disclose wherein the communication interface circuit is adapted to send a discovery query and to receive discovery response messages over the at least one communication interface upon receipt of a manual discovery request from a system operator (figure 9, col. 18 lines 25-54).

For claim 11, Milliron et al. disclose wherein the communication interface circuit is adapted to resend a discovery query if no discovery response messages is received from the second communication device (figure 14, col. 19 lines 54-57 and col. 24 lines 35-43).

For claim 13, Milliron et al. disclose digital carrier system for rural telephone and data applications, comprising:

a communication link (figure 5, reference 35, col. 8 lines 41-42);

a plurality of communication devices (figure 4, references 33, 34, and 38) coupled to the communication link (figure 5, reference 35), wherein at least two communication devices of the plurality of communication devices (figure 4, references 33, 34, and 38) are terminal communication devices (figure 5, references 33 and 38) (col. 8 lines 41-46), and wherein at least one of the plurality of communication devices comprises:

at least one communication interface coupled to the communication link (figure 7, reference 60, col. 15 lines 47-52);

a communication interface circuit (figure 7, reference 62, col. 15 line 48) coupled to the at least one communication interface (figure 7, reference 60, col. 15 line 47), wherein the at least one communication interface circuit communicates using a communication protocol (col. 17 lines 45-48) and a hop count (figure 9, col. 19 lines 30-67);

wherein the communication interface circuit (figure 7, reference 62) is adapted to send a discovery query to the plurality of communication devices coupled to the communication link (figure 5, reference 35) and receive discovery response messages over the EOC from the plurality of communication devices (figure 9, reference state 154, col. 18 lines 43-54); and

wherein the communication interface circuit (figure 7, reference 62) is adapted to compare a hop count from the discovery response message from one of the at least two terminal communication devices coupled to the communication link to a total number of discovery response messages received from the one of the at least two terminal communication devices and any intervening communication devices of the plurality of communication devices (figure 9, col. 19 lines 52-54).

However, Milliron et al. do not expressly disclose wherein the communication protocol contains an embedded operation channel (EOC). In an analogous art, Schumann-Olsen et al. disclose wherein the communication protocol contains an embedded operation channel (EOC) (figure 1, reference Maintenance EOC, paragraph [0004]).

One skilled in the art would have recognized the communication protocol contains an embedded operation channel (EOC), and would have applied Schumann-Olsen et al.'s HDSL transmission system in Milliron et al.'s COT 38. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Schumann-Olsen et al.'s managed HDSL repeater in Milliron et al.'s digital carrier system for rural telephone and data applications with the motivation being to provide the HDSL access line (paragraph [0004].

For claim 14, Milliron et al. disclose wherein the at least one communication device is a doubler (figure 5, reference 34, col. 8 lines 42-43).

For claim 15, Milliron et al. disclose wherein the at least one communication device is a terminal communication device (figure 5, reference 33, col. 8 line 42).

For claim 16, Milliron et al. disclose wherein the communication system is a High-speed Digital Subscriber Line (HDSL) communication system (col. 11 line 30-31).

For claim 18, Milliron et al. disclose wherein the at least one communication device is adapted to selectively configure the communication interface circuit and the at least one communication interface in response to the received discovery response messages (figure 7, col. 15 lines 48-52).

For claim 19, Milliron et al. disclose wherein the communication interface circuit of the at least one communication device is adapted to send the discovery query and to receive discovery response messages over the EOC of a plurality of communication interfaces simultaneously (figure 9, col. 18 lines 25-54).

For claim 20, Milliron et al. disclose wherein the communication interface circuit is adapted to send the discovery query and to receive discovery response messages over the at least one communication interface upon initialization of the communication device (figure 9, col. 18 lines 25-54).

For claim 21, Milliron et al. disclose wherein the communication interface circuit of the at least one communication device is adapted to send the discovery query and to receive discovery response messages over the at least one communication interface upon having the at least one communication interface coupled to the communication link (figure 9, col. 18 lines 25-54).

For claim 22, Milliron et al. disclose wherein the communication interface circuit circuit of the at least one communication device is adapted to send the discovery query and to receive discovery response messages over the at least one communication

interface upon receipt of a manual discovery request from a system operator (figure 9, col. 18 lines 25-54).

For claim 24, Milliron et al. disclose wherein the communication interface circuit is adapted to resend a discovery query if no discovery response messages is received from one of the at least two terminal communication devices (figure 14, col. 19 lines 54-57 and col. 24 lines 35-43).

For claim 26, Milliron et al. disclose digital carrier system for rural telephone and data applications, comprising:

at least one HDSL communication interface (figure 7, reference 60, col. 15 line 47);

an HDSL communication circuit (figure 7, reference 62, col. 15 line 48) coupled to the at least one HDSL communication interface (figure 7, reference 60, col. 15 line 47), wherein the HDSL communication interface circuit communicates using HDSL communication protocol (col. 17 lines 45-48) and a hop count (figure 9, col. 19 lines 30-67);

wherein the HDSL communication interface circuit (figure 7, reference 62) is adapted to send an HDSL discovery query and to receive HDSL discovery response messages over the EOC of the at least one HDSL communication interface (figure 9, reference state 154, col. 18 lines 43-54); and

wherein the HDSL communication interface circuit (figure 7, reference 62) is adapted to compare a hop count from an HDSL discovery response message from a second HDSL communication device to a total number of HDSL discovery response

messages received from the second HDSL communication device and any intervening HDSL communication devices (figure 9, col. 19 lines 52-54).

However, Milliron et al. do not expressly disclose wherein the communication protocol contains an embedded operation channel (EOC). In an analogous art, Schumann-Olsen et al. disclose wherein the communication protocol contains an embedded operation channel (EOC) (figure 1, reference Maintenance EOC, paragraph [0004]).

One skilled in the art would have recognized the communication protocol contains an embedded operation channel (EOC), and would have applied Schumann-Olsen et al.'s HDSL transmission system in Milliron et al.'s COT 38. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Schumann-Olsen et al.'s managed HDSL repeater in Milliron et al.'s digital carrier system for rural telephone and data applications with the motivation being to provide the HDSL access line (paragraph [0004].

For claim 27, Milliron et al. disclose wherein the HDSL communication device further comprises:

a processor (figure 7, reference 67) coupled to the HDSL communication circuit (col. 15 lines 62-67); and

a machine-usable storage media coupled to the processor, wherein the processor utilizes discovery firmware stored on the machine-usable storage media to conduct discovery on the HDSL communication interface (col. 25 lines 17-20).

For claim 28, Milliron et al. disclose wherein the communication device is a doubler (figure 5, reference 34, col. 8 lines 42-43).

For claim 29, Milliron et al. disclose wherein the HDSL communication device is a terminal HDSL communication device (figure 5, reference 33, col. 8 line 42).

For claim 30, Milliron et al. disclose wherein the HDSL communication circuit is adapted to send the discovery query and to receive discovery response messages over the EOC of a plurality HDSL communication interfaces simultaneously (figure 9, col. 18 lines 25-54).

For claim 31, Milliron et al. disclose wherein the HDSL communication circuit is adapted to send the discovery query and to receive discovery response messages over the at least one communication HDSL interface upon initialization of the communication device (figure 9, col. 18 lines 25-54).

For claim 32, Milliron et al. disclose wherein the HDSL communication circuit is adapted to send the discovery query and to receive discovery response messages over the at least one HDSL communication interface upon having the at least one HDSL communication interface coupled to an active HDSL communication link (figure 9, col. 18 lines 25-54).

For claim 34, Milliron et al. disclose wherein the HDSL communication circuit is adapted to resend the discovery query when no discovery response messages is received from the second HDSL communication device (figure 14, col. 19 lines 54-57 and col. 24 lines 35-43).

For claim 35, Milliron et al. disclose digital carrier system for rural telephone and data applications, comprising:

an HDSL communication link (figure 5, reference 35, col. 8 lines 41-42); and

a plurality of HDSL communication devices (figure 4, references 33, 34, and 38) coupled to the HDSL communication link (figure 5, reference 35), wherein at least two HDSL communication devices of the plurality of HDSL communication devices (figure 4, references 33, 34, and 38) are terminal HDSL communication devices (figure 5, references 33 and 38) (col. 8 lines 41-46), and wherein at least one of the plurality of HDSL communication devices comprises:

at least one HDSL communication interface coupled to the HDSL communication link (figure 7, reference 60, col. 15 lines 47-52);

a HDSL communication interface circuit (figure 7, reference 62, col. 15 line 48) coupled to the at least one HDSL communication interface (figure 7, reference 60, col. 15 line 47), wherein the at least one HDSL communication interface circuit communicates using an HDSL communication protocol (col. 17 lines 45-48) and a hop count (figure 9, col. 19 lines 30-67);

wherein the HDSL communication interface circuit (figure 7, reference 62) is adapted to send a discovery query to the plurality of HDSL communication devices coupled to the HDSL communication link (figure 5, reference 35) and receive discovery response messages over the EOC from the plurality of HDSL communication devices (figure 9, reference state 154, col. 18 lines 43-54); and

wherein the HDSL communication interface circuit (figure 7, reference 62) is adapted to compare a hop count from the discovery response message from one of the at least two terminal HDSL communication devices coupled to the HDSL communication link to a total number of discovery response messages received from the one of the at least two terminal HDSL communication devices and any intervening HDSL communication devices of the plurality of HDSL communication devices (figure 9, col. 19 lines 52-54).

However, Milliron et al. do not expressly disclose wherein the communication protocol contains an embedded operation channel (EOC). In an analogous art, Schumann-Olsen et al. disclose wherein the communication protocol contains an embedded operation channel (EOC) *figure 1, reference Maintenance EOC, paragraph [0004]).

One skilled in the art would have recognized the communication protocol contains an embedded operation channel (EOC), and would have applied Schumann-Olsen et al.'s HDSL transmission system in Milliron et al.'s COT 38. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Schumann-Olsen et al.'s managed HDSL repeater in Milliron et al.'s digital carrier system for rural telephone and data applications with the motivation being to provide the HDSL access line (paragraph [0004].

For claim 36, Milliron et al. disclose wherein the HDSL communication interface circuit is adapted to send a discovery query and to receive discovery response

messages over the at least one HDSL communication interface upon initialization of the at leasr one HDSL communication device (figure 9, col. 18 lines 25-54).

For claim 37, Milliron et al. disclose wherein the HDSL communication interface circuit of the at least one HDSL communication device is adapted to send the discovery query and to receive discovery response messages over the at least one HDSL communication interface when the at least one HDSL communication interface coupled to the HDSL communication link (figure 9, col. 18 lines 25-54).

For claim 39, Milliron et al. disclose wherein the HDSL communication interface circuit of the at least one HDSL communication device is adapted to resend the discovery query if no discovery response messages is received from one of the at least two terminal HDSL communication devices of the communication system (figure 14, col. 19 lines 54-57 and col. 24 lines 35-43).

3. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Milliron et al. (US 6,208,670) in view of Schumann-Olsen et al. (US 2002/0057652) further in view of Jones et al. (US 6,693,992).

For claim 4, Milliron et al. in view of Schumann-Olsen et al. do not disclose wherein the communication device is a Global Symmetric High-speed Digital Subscriber Line (G.SHDSL). In an analogous art, Jones et al. disclose a Global Symmetric High-speed Digital Subscriber Line (G.SHDSL) (col. 10 line 43).

One skilled in the art would have recognized the Global Symmetric High-speed Digital Subscriber Line (G.SHDSL), and would have applied Jones et al.'s generating a sequence signal in Milliron et al. COT 38. Therefore, it would have been obvious to one

of ordinary skill in the art at the time of the invention, to use Jones et al.'sline probe signal and method of use in Milliron et al.'s digital carrier system for rural telephone and data applications with the motivation being to determine the bit rate at which the line will support communication (col. 10 lines 40-41).

For claim 17, the claim is directed to the same subject matter as in claim 4. Therefore, it is subjected to the same rejection.

4. Claims 40-45, 47, 49-53, 55, and 57-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Milliron et al. (US 6,208,670).

For claim 40, Milliron et al. disclose digital carrier system for rural telephone and data applications, comprising:

an embedded operation channel (EOC) (figure 9, reference state 154, col. 18 lines 43-54); and

receiving discovery response messages from at least one terminal communication device and any intervening communication devices (figure 9, col. 18 lines 40-54);

extracting a hop count from the discovery response from the terminal communication device (col. 19 lines 9-23); and

comparing a total number of discovery response messages received from the terminal communication device and any intervening communication devices to a hop count of the discovery response message from the terminal communication device to determine if discovery is complete (figure 9, col. 19 lines 52-54).

However, Milliron et al. do not expressly disclose sending a discovery query. To include the sending a discovery query would have been obvious to one of ordinary skill in the art because Milliron et al. further teach "In step 230, a START signal is received by the downstream component. An inquiry is conducted in step 232 to determine whether the downstream component is operating in the transparent mode."

For claim 41, Milliron et al. disclose storing discovery routines on a machine readable storage medium (col. 25 lines 16-19).

For claim 42, Milliron et al. disclose selectively configure the communication device in response to the received at least one discovery response messages (figure 7, col. 15 lines 48-52).

For claim 43, Milliron et al. disclose wherein sending the discovery query and receiving discovery response messages further comprises sending the discovery query and receiving discovery response messages upon initialization of the communication device (figure 9, col. 18 lines 25-54).

For claim 44, Milliron et al. disclose wherein sending the discovery query and receiving discovery response messages further comprises sending the discovery query and receiving at least one discovery response messages upon coupling the communication device to a communication link (figure 9, col. 18 lines 25-54).

For claim 45, Milliron et al. disclose sending the discovery query and receiving discovery response messages further comprises sending the discovery query and receiving a discovery response message upon receipt of a manual discovery request from a system operator (figure 9, col. 18 lines 25-54).

For claim 47, Milliron et al. disclose resending the discovery query if no discovery response messages are received from the terminal communication device (figure 14, col. 19 lines 54-57 and col. 24 lines 35-43).

For claim 49, Milliron et al. disclose digital carrier system for rural telephone and data applications, comprising:

an embedded operation channel (EOC) (figure 9, reference state 154, col. 18 lines 43-54); and

receiving discovery response messages from at least one terminal communication device and any intervening communication devices (figure 9, col. 18 lines 40-54);

extracting a hop count from the discovery response from the at least one terminal communication device (col. 19 lines 9-23); and

determining if discovery is complete by comparing a total number of discovery response messages received from the terminal communication device and any intervening communication devices to the hop count of the discovery response message from the at least one terminal communication device (figure 9, col. 19 lines 52-54).

However, Milliron et al. do not expressly disclose transmitting a discovery query from a first communication device. To include the transmitting a discovery request from a first communication device would have been obvious to one of ordinary skill in the art because Milliron et al. disclose "In step 230, a START signal is received by the

downstream component. An inquiry is conducted in step 232 to determine whether the downstream component is operating in the transparent mode."

For claim 50, Milliron et al. disclose selectively configure the first communication device in response to the received discovery response messages (figure 7, col. 15 lines 48-52).

For claim 51, Milliron et al. disclose wherein transmitting the discovery query and receiving discovery response messages further comprises transmitting a discovery query and receiving at least one discovery response message upon initialization of the first communication device (figure 9, col. 18 lines 25-54).

For claim 52, Milliron et al. disclose wherein transmitting the discovery query and receiving discovery response messages further comprises transmitting a discovery query and receiving at least one discovery response message upon coupling the first communication device to a communication link (figure 9, col. 18 lines 25-54).

For claim 53, Milliron et al. disclose transmitting the discovery query and receiving discovery response messages further comprises transmitting a discovery query and receiving at least one discovery response message upon receipt of a manual discovery request from a system operator (figure 9, col. 18 lines 25-54).

For claim 55, Milliron et al. disclose re-transmitting a discovery query if no discovery response messages are received from the terminal communication device (figure 14, col. 19 lines 54-57 and col. 24 lines 35-43).

For claim 57, Milliron et al. disclose digital carrier system for rural telephone and data applications, comprising:

an embedded operation channel (EOC) of an HDSL communication coupled to the HDSL communication device (figure 9, reference state 154, col. 18 lines 43-54);

receiving discovery response messages from at least one terminal HDSL communication device and any intervening HDSL communication devices coupled to the HDSL communication link (figure 9, col. 18 lines 40-54); and

comparing a total number of discovery response messages received from the terminal HDSL communication device and any intervening HDSL communication devices to a hop count from a discovery response message from the terminal HDSL communication device to determine if discovery is complete (figure 9, col. 19 lines 52-54).

However, Milliron et al. do not expressly disclose sending a discovery request. To include the sending a discovery request would have been obvious to one of ordinary skill in the art because Milliron et al. disclose "In step 230, a START signal is received by the downstream component. An inquiry is conducted in step 232 to determine whether the downstream component is operating in the transparent mode."

For claim 58, Milliron et al. disclose digital carrier system for rural telephone and data applications, comprising:

an embedded operation channel (EOC) of an HDSL communication link coupled to the first HDSL communication device and at least one second HDSL communication device (figure 9, reference state 154, col. 18 lines 43-54);

receiving at least one discovery response message from the at least one second HDSL communication device, wherein at least one response message of the at least

one discovery response message is a discovery response from a terminal HDSL communication device of the HDSL communication link (figure 9, col. 18 lines 40-54); and

determining if discovery is complete by comparing a total number of discovery response messages received from the terminal HDSL communication device and any intervening HDSL communication devices coupled to the HDSL communication link to a hop count of the discovery response message of the terminal HDSL communication device (figure 9, col. 19 lines 52-54).

However, Milliron et al. do not expressly disclose transmitting a discovery request from a first communication device. To include the transmitting a discovery request from a first communication device would have been obvious to one of ordinary skill in the art because Milliron et al. disclose "In step 230, a START signal is received by the downstream component. An inquiry is conducted in step 232 to determine whether the downstream component is operating in the transparent mode."

For claim 59, Milliron et al. disclose digital carrier system for rural telephone and data applications, comprising:

an embedded operation channel (EOC) of an HDSL communication coupled to the HDSL communication device (figure 9, reference state 154, col. 18 lines 43-54);

receiving discovery response message from at least one terminal communication device and any intervening communication devices coupled to the communication link (figure 9, col. 18 lines 40-54); and

comparing a total number of discovery response messages received from the terminal communication device and any intervening communication devices coupled to the communication link to a hop count of the discovery response message from the terminal communication device to determine if discovery is complete (figure 9, col. 19 lines 52-54).

However, Milliron et al. do not expressly disclose sending a discovery request. To include the sending a discovery request would have been obvious to one of ordinary skill in the art because Milliron et al. disclose "In step 230, a START signal is received by the downstream component. An inquiry is conducted in step 232 to determine whether the downstream component is operating in the transparent mode."

Allowable Subject Matter

5. Claims 10, 12, 23, 25, 33, 38, 46, 48, 54, and 56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed 05/25/06 have been fully considered but they are not persuasive.

The applicant argues with respect to independent claims 1, 13, 26, 35, 40, 49, and 57-59, that Milliron and Schumann-Olsen, either alone or in combination, do not teach "comparing a hop count from a discovery response message to a total number of received discovery response messages." The applicant argues that "In the event that

the value of the echoed RUN signal does not match the known number of downstream components, the COT 38 will determine that the digital carrier system has entered an error condition." (col. 19 lines 52-57). Further, in Milliron, "The COT determines whether the detected number of downstream components is equal to the known number of downstream components connected to the bidirectional communications link. This inquiry is conducted by comparing the known number of downstream components to the value of the RUN signal received by the COT" (col. 22 lines 47-53). Applicant argues that Milliron and Schumann-Olsen, either alone or in combination, does not compare a hopcount from a discovery response message to the total number of received discovery response messages. The examiner disagrees. Applicant's attention is directed to Milliron patent at col. 19 lines 52-54, where Milliron clearly teaches "The COT 38 should receive an "echoed" RUN signal (a discovery response message means) having a value representing (comparing means) the total number of downstream components (a total number of received discovery response messages means)." Therefore, the rejection of the independent claims 1, 13, 26, 35, 40, 49, and 57-59 are retained.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan D. Nguyen whose telephone number is 571-272-3153. The examiner can normally be reached on M-F (7:00AM-4:30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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